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Final Report of AFOSR Grant AFOSR F49620-02-1-0095
International Conference on Scientific Computing, Partial Differential Equations and Image Processing

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4/1/02 - 9/30/02

This is a grant to cover partial cost of the organization of the International Conference on Scientific Computing, Partial Differential Equations and Image Processing, held at IPAM, UCLA on April 5-7, 2002. The conference was held in honor of Stanley Osher on the occasion of his 60th birthday, to commemorate his achievement in many of the areas covered by this conference, including high resolution shock capturing schemes, level set method, applications to multi-phase flows, computer vision, TV based image restoration, just to name a few.

The main purpose of this conference went far beyond a birthday celebration. It served the purpose of reviewing recent developments and exploring exciting new directions in scientific computing and partial differential equations for time dependent problems and its interaction with other fields such as image processing, computer vision and graphics. An emphasis of this conference, which hopefully will set it to be different from others, is the strong interaction of significant mathematics with advanced algorithms applicable to real world applications. It is very natural for this conference to be held at UCLA as this seems to be the tradition and strong spirit of both the UCLA mathematics department and the new Institute for Pure and Applied Mathematics.

The conference committee consists of Russel Caflisch (UCLA), Weinan E (Princeton), Bjorn Engquist (chair, UCLA), David Gottlieb (Brown), Mohamed Hafez (UC Davis), Guillermo Sapiro (Minnesota), Chi-Wang Shu (Brown) and Hongkai Zhao (UC Irvine). The following 15 people gave 45-minute invited talks:

- Yann Brenier, Mathematics, Paris 6 University, France.
- David Donoho, Statistics, Stanford University.
- Bjorn Engquist, Mathematics, UCLA.
- Daniel Joseph, Aerospace Engineering and Mechanics, University of Minnesota.
- Joseph Keller, Mathematics, Stanford University.
- Heinz Kreiss, Mathematics, UCLA.

- Tai-Ping Liu, Mathematics, Stanford University.
- Andrew Majda, Mathematics, Courant Institute.
- George Papanicolaou, Mathematics, Stanford University.
- Philip Roe, Aerospace Engineering, University of Michigan.
- Guillermo Sapiro, Electrical and Computer Engineering, University of Minnesota.
- Chi-Wang Shu, Applied Mathematics, Brown University.
- Takis Souganidis, Mathematics, University of Texas at Austin.
- Eli Yablonovitch, Engineering, UCLA.
- Shing-Tung Yau, Mathematics, Harvard University.

We can see from this list of invited speakers that the conference covers a quite broad spectrum, from pure mathematics with an eye for applications to fore-front engineering innovations. The speakers made an effort to choose the topics of their talks to make the conference coherent. The talks are well received and regarded as of uniform high quality.

The total number of participants to this conference is 142. These include researchers from academia, industry and national labs. The participants include at least 12 women and 46 minorities, as well as 55 graduate students or postdocs. The funding enables us to support partially the majority of graduate student and postdoc participants who asked for support.